Thousand Cankers Disease of Black Walnut

A serious disease discovered in the Northeastern Area in 2011

U.S. Department of Agriculture
Forest Service
Northeastern Area State and Private Forestry

Description: The walnut twig beetle, *Pityophthorus juglandis* (WTB), carries a canker-causing fungus, *Geosmithia morbida* (GM). Together they are called Thousand Cankers Disease (TCD). The disease was found in 2011 in Bucks County, PA, near Philadelphia. WTB and GM were found in southwest Ohio in 2012 and 2013 respectively, near a mill that imported walnut wood from California. In 2014 TCD was found in two more counties in s.e.PA, Chester and Lancaster and in Cecil County, MD. In addition, a 10 acre plantation in Brown Co., IN was discovered to have GM casually associated with a weevil, *Stenomimus pallidus*, in the absence of WTB. This calls into question the role of GM in TCD. Other eastern US infestations occur in and around Knoxville, TN; Richmond and Arlington, VA; and at one site in western NC. TCD was first seen in the western US in the 1990s. After up to 10 years of repeated beetle attacks, the fungus causes cankers on the tree that coalesce, suggesting the common name. The disease eventually kills eastern black walnut trees.

Key Issues:

- Eastern black walnut, one of the most valuable species for veneer, lumber, woodworking and nuts, is threatened across its native range.
- A single black walnut tree can sell for tens of thousands of dollars.
- Many mills and hundreds of workers depend on high value walnut logs.
- Missouri is the center of the black walnut nut industry.
- Exports of quality logs to China helps to offset the US trade deficit.
- Many individuals and companies have invested in walnut plantations and managed woodlands.
    - We need to:
    - Ascertain the actual role of GM and myriad other fungi found on walnut and in association with WTB
    - Determine how the pest complex behaves in native walnut woodlands and plantations.
    - Provide information and education to landowners, land managers, and the public to prevent human-aided spread.
    - Continue to improve the WTB trap and survey protocols for early detection to retard the spread of TCD.
    - Develop management protocols, including testing the efficacy of rapid sanitation following early detection and delimitation.

Accomplishments:

- No new counties detections in PA, MD or OH; and, GM in one county in IN
- Continued WTB detection surveys throughout the native walnut growing States in NA.
- Continued outreach to growers and land managers on the distribution of TCD
- Refined survey protocols to improve the effectiveness of the beetle lure and trap.

- With FHTET and APHIS, developed a comprehensive map of TCD detection trapping.
- Continued walnut resistance trials with the US Forest Service Northern Research Station through the Special Technology Development Program.
- Contributed to the ongoing research effort with NRS to characterize the etiology of TCD and associated fungi.

Budget History:

Thousand Cankers Disease *(Dollars in thousands)*					
	FY 2011	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**
Symposium	5.0				
Pest Alert			2.1		
Reprint	1.7				
Detection surveys	180	70	60	75	
Totals	**$186.7**	**$70**	**$62.1**	**$75**	**TBD**

Future Direction:

- Continue detection surveys; intensify delimitation surveys around known infestations.
- Continue information and education efforts.
- Develop effective methods for TCD management and control.
- Assist in improving insect traps.
- Promote management of walnut to reduce stand vulnerability.
- Test various management alternatives (prevention, treatments, sanitation, disposal).

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